

Criteria for Ageing and Sexing Waders: Introducing a new *Bulletin* series

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Introduction

Male, female, juvenile, immature and adult waders may differ in many aspects of their life, such as habitat selection, behaviour, migration distance, timing and strategy. Therefore the ability to determine the age and sex of live birds accurately is often of crucial importance in wader research. The BTO's *Guide to the identification and ageing of Holarctic waders* written by Tony Prater, John Marchant and Juhani Vuorinen published in 1977 was a milestone for wader researchers. It is still in print and widely used, but after 30 years many new methods for determining age and sex have been discovered. Hence there is an urgent need to review existing knowledge and summarise what we know species by species. Moreover, growing interest in the waders that inhabit the Southern Hemisphere, as well as lesser known species, suggests that the scope of a new account needs to be broader.

The plan is to publish a series of short articles in the

Wader Study Group Bulletin summarizing recent knowledge of ageing and sexing, but also highlighting gaps in knowledge. The series will be focussed mainly on live birds in the hand, but should be helpful in field observations as well as in studies of museum skins. I will act as coordinator of the series. Potential contributors are asked to get in touch with me or the Editor.

Most people who catch waders only do so during limited parts of the year and/or in limited parts of the world, so expertise on ageing and sexing criteria tends to be restricted. Frequently it has been found that characters that work at one time of year and place do not at others. Therefore these articles will seek to gather the expertise that is available and at the same time make it clear where and when it is known to be applicable. This does not necessarily mean that it will not be applicable in other circumstances; just that there is a need for caution.

Terminology

Although different plumage and moult terminologies are used in different publications and in different parts of the world and there is much confusion, this series aims at simplicity and is based on the following key definitions:

Juvenile plumage – the plumage of a newly-fledged chick. Most of it is usually retained for only a few weeks, but sometimes longer. Vestiges of juvenile plumage (often inner median coverts) can often be used to determine age for six to nine months or more after fledging.

During **post-juvenile moult** juvenile plumage is progressively replaced by first non-breeding season plumage (first winter plumage). This is often the same as adult non-breeding plumage. However, in most species flight feathers (primaries, secondaries and tertials) and tail feathers are retained and become more worn and pointed compared with those of adults. In some species, especially in the Southern Hemisphere, all or some primaries may be replaced during the latter half of the bird's first year.

First breeding plumage is attained by first year birds as a result of a partial first pre-breeding season moult. In many small and medium sized shorebirds, this plumage is indistinguishable from adult breeding plumage. However, in

larger species and in those populations in which first year birds do not return to the breeding grounds, some feathers from previous plumages are usually retained and/or most or all newly-moulted feathers are non-breeding rather than breeding plumage.

Adult non-breeding plumage is acquired after the complete adult post-breeding moult.

Adult breeding plumage is acquired as a result of a partial pre-breeding season moult of body plumage (not flight or tail feathers).

In some larger species, which reach maturity after two to three years, ageing is possible up to the second non-breeding season. However their ageing is based mainly on bare-part colours, not plumage.

Timing and schedule of moult are very important in ageing and will be described separately for each species or subspecies.

A future article in this series will describe general principles of ageing and sexing waders worldwide, but the series starts with one on the *curonicus* subspecies of the Little Ringed Plover *Charadrius dubius*.



Ageing and sexing the *curonicus* subspecies of the Little Ringed Plover *Charadrius dubius*

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Data presented here concern the *curonicus* subspecies of the Little Ringed Plover *Charadrius dubius* and are based mainly on information from Central Europe and Africa gathered during the breeding, migration and wintering periods. Therefore these criteria should be applied to other Little Ringed Plover subspecies or *curonicus* from other locations with caution.

The breeding range of *curonicus* covers almost the whole of Europe, NW Africa and a vast area of Asia between the arctic and desert zones. In Central Europe, autumn migration starts around the end of June or beginning of July and migration peaks between mid-June and mid-August. The main non-breeding grounds are in Africa south of the Sahara and north of the equator, in the Arabian Peninsula, east China and Indonesia. Birds return to European breeding areas in March and April

MOULT SCHEDULE

The sequence of plumages is similar to other small plovers breed in northern hemisphere (Fig. 1). Juvenile plumage is replaced by first non-breeding plumage from August (at the earliest) until December. Usually only a few juvenile inner median coverts remain after the post-juvenile moult. These may be retained until the following summer. Breeding plumage is attained in the partial pre-breeding moult, which starts in January or February and is completed shortly after arrival on the breeding grounds in late March or early April. Post-breeding moult of body feathers starts in June at the earliest. Birds with full non-breeding plumage are recorded from November. The inner 1–3 primaries are sometimes moulted during the breeding season, but the main primary moult starts in August. Most finish primary moult just after arrival on the non-breeding grounds. Juvenile flight feathers are not replaced until after the first breeding season.

AGEING

Juvenile plumage – distinctive, lack of the black and white head and breast pattern of adults. Upperparts olive-brown with pale buff or reddish buff fringes and with faint darker sub-terminal band.

First non-breeding plumage – from adult non-breeding by presence of retained juvenile inner median coverts. To identify these, the key is the presence of a dark, thin sub-terminal band (Fig. 2). Adults attain coverts with buff fringes during post-breeding moult in autumn, but they have no dark sub-terminal band. Some first-year birds however moult all juvenile coverts and become impossible to age. An additional feature is primary wear: primaries are more worn in juveniles than in adults in non-breeding plumage.

First breeding plumage – some individuals may retain juvenile inner medians and this is the only reliable feature indicating age. Many first summer birds have a mixture of brown winter plumage feathers and new black ones within the dark parts of the head and breast. However the amount of black and brown feathers in the breast band and on the head depends also on sex, so it is not a good character for ageing. The primaries of birds in their first breeding plumage are very worn, and much browner than in adults. However, it has been suggested that a very few first-year birds might undergo a primary moult during their first autumn like the adults, but this may only relate to birds from the eastern part of the breeding range of *curonicus*, which spend the winter in southern Asia.

Adult breeding plumage – Characteristic head pattern with black or blackish brown markings. In fresh plumage, median coverts have buff fringes, but no dark sub-terminal band. When the fringes of the wing coverts are badly worn, the upperparts look uniformly ash-brown (Fig. 2).

Adult non-breeding plumage – Generally similar to adult breeding plumage, but black feathers within the dark head and breast bands are replaced by brown or blackish-brown ones. The white on the head is tinged buff.

To summarise: distinctive juvenile inner medians are retained up to at least October/November and this means that the ageing of first-year birds in early autumn is straightforward (ringing codes: EURING = 3; North American = HY). Among birds in the breeding plumage, attention should be paid to the presence of juvenile inner median coverts indicating a bird

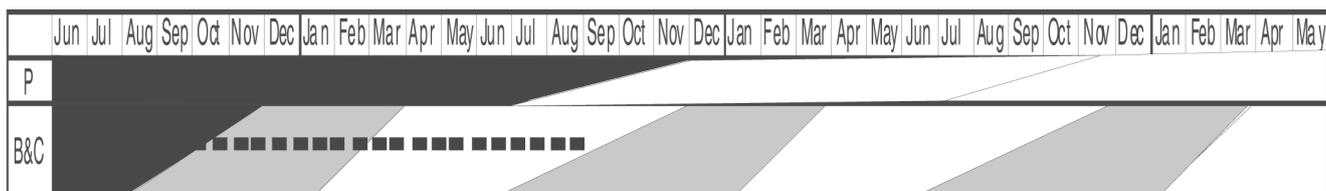


Fig. 1. Moulting schedule of Little Ringed Plover. P = primaries; B & C = body feathers and upper wing coverts; Black = juvenile feathers; grey = non-breeding plumage; white = breeding plumage; black broken line = presence of retained juvenile inner median coverts (but not in all individuals).





Fig. 2. Inner median coverts of juvenile and adult Little Ringed Plover (drawings by Cezary Wójcik).



Fig. 3. Head and breast pattern of juvenile, typical adult male and typical adult female Little Ringed Plover (drawings by Cezary Wójcik).

in the first breeding plumage (ringing codes: EURING = 5; North American = SY); such birds should have also very worn primaries. Other birds in breeding plumage should be aged as older than one year (ringing codes: EURING = 4; North American = AHY), but the majority of those with only moderately worn primaries are probably older than two years (ringing codes: EURING = 6; North American = ASY). After post-breeding and post-juvenile moult, the only certain feature of birds in the first winter or first breeding plumage is retained juvenile inner median coverts (ringing codes: EURING: up to 31 December = 3, after 31 December = 5; North American = HY or SY respectively). Birds with no such inner medians cannot be reliably aged in winter, i.e. they could be adult or first year (ringing codes: EURING: up to 31 December = 2, after 31 December = 4; North American = U or AHY respectively).

SEXING

Adult male in breeding plumage – head markings are deeply black, only ear coverts (especially their rear part) might be dark brown. The eye-ring is an intense yellow to yolk-yellow and wider than in females. (See Fig. 3).

Adult female in breeding plumage – within the black head markings, there is an admixture of brown feathers. The ear coverts and the dark area under the eye are brown or dark brown, but never deeply black. The eye-ring is a more citron-yellow, than yolk-yellow, and it is thinner than in males.

Sexing is rather easy only in the case of breeding pairs. With very rare exceptions, within a pair the differences in head markings (especially in the ear coverts and the dark area



under the eye) and orbital ring colour are easy to recognize. Single birds caught during the breeding season or on migration should be sexed with caution. However, individuals with completely black head markings (though the rear part of the ear coverts may be dark brown) and bright orbital ring may be safely sexed as adult males. Problems with sexing birds with an admixture of brown feathers within black head markings arise from the fact that birds in first breeding plumage may retain some feathers from winter plumage which results in brown feathers being mixed within the dark head markings. Only slightly worn primaries point to an adult and very worn primaries to first summer/breeding plumage, but in some rare cases adults may also have very worn flight feathers.

Although males show a tendency to have a greater orange-pinkish area at the bill base, which extends to the upper part of the bill, this feature is not good for sexing even within a particular breeding pair.

Linear measurements of males and females overlap to a great extent so biometrics should only be used as an additional criterion that is indicative of sex within a particular breeding pair, females being generally larger than males.

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